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ABSTRACT

This document is written in an effort to urge commuter colleges and universities to use their technical expertise in solving the automobile problem, which adds to the congestion and pollution in college communities. It has become a necessity that colleges and universities begin to explore ways to offer a variety of less expensive transportation alternatives to the student. Mass transit, carpools, buspools, and the bicycle are some of the alternatives to be considered. Carpooling is the best method available to reduce the transportation expenses of commuter students. It can also help to alleviate the traffic congestion, pollution, and parking problems on each campus. This careful carpool package has been designed to provide some hints on how to start an efficient carpool system at higher education institutions. Included in this packet are sections covering: publicity and recruitment for carpools, incentives for carpooling, carpool promotion at the University of Maryland, matching riders, matching geographical areas, informing commuters of prospective carpool participants, resources on carpools, campus bus systems, bicycle systems, a sample survey to investigate transportation patterns, and a sample survey to investigate the feasibility of a bicycle system. (Author/PG)

the NATIONAL CLEARINGHOUSE for COMMUTER PROGRAMS



# SOME TRANSPORTATION ALTERNATIVES FOR COMMUTER COLLEGES & UNIVERSITIES





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# SOME TRANSPORTATION ALTERNATIVES FOR COMMUTER COLLEGES & UNIVERSITIES

We would like to urge commuter colleges and universities to use their wealth of technical expertise in solving the automobile problem which adds to the increasing congestion and pollution problems in our college communities. The energy crisis is a new phenomenon for our country which strikes at the heart of our love affair with the automobile.

The implications for commuter colleges are not so obvious. One of the major consequences will be to add more frustrations and even higher costs to the already burdened commuter student. This could be the final blow. We may see many students dropping out or not attending our commuter institutions because of these irritations.

It has become a necessity that colleges and universities begin to explore ways to offer a variety of less expensive transportation alternatives to the student.

Mass transit, carpools, buspools, and the bicycle are some of the alternatives to be considered.

Carpooling is the best method immediately available to reduce the transportation expenses of commuter students. It can also help to alleviate the traffic congestion, pollution and parking problems on each campus. This Careful Carpool package has been designed to provide some hints on how to start an efficient carpool system at your institution.

A few universities have begun to develop and implement successful carpool programs. The University of Maryland, Oakland University and the University of Detroit give preferred parking spaces to commuters who form carpools. The University of Minnesota and other institutions sponsor a free computerized matching of students by schedules and geographic areas. However, many of the carpool systems which have proven successful have been designed by governmental agencies, civic organizations or business industries. But, the wholesale adoption of another University's or industrial carpool system, no matter how well planned, will not guarantee success. We hope that you find the enclosed material helpful in saving you valuable time in not having to search for relevant carpool material--we think carpools can make a difference and hope they can work at your campus.

Sincerely,

Mark W. Hardwick

Mark W. Hardwick

Martha P. Kazlo

Martha P. Kazlo

## Publicity & Recruitment for Carpools

The first and most important step in starting a carpool program for your campus is to plan the publicity carefully. Every student, faculty and staff member should be aware that the carpool program is starting and know how to participate.

Rationale and examples of materials and ideas that have successfully helped to publicize the program and recruit participants are presented below.

Why you need publicity?

1. Inform the population of what exists.
2. Reward the carpool participants with incentives; for example, free concert tickets, free oil changes, etc.
3. Raise funds from local business enterprises for publicity and promotion.
4. Encourage more participation by other community members.

Sources of publicity.

1. The media--use a variety of approaches to reach the many different target groups of faculty, staff and students--campus newspaper, local community newspapers, radio station or T.V. networks. These access areas are needed to reach the commuter population.

2. Newspapers - Press

a. Campus newspaper - very important because it is targeted to the group you want to attract. Try many different approaches: want ads, editorials, feature stories, letters to the editor, paid advertisements with cut out application forms.

b. Local community papers--might do a column on programs for local commuters; or it may be possible to develop a system of including commuter news on a monthly basis.

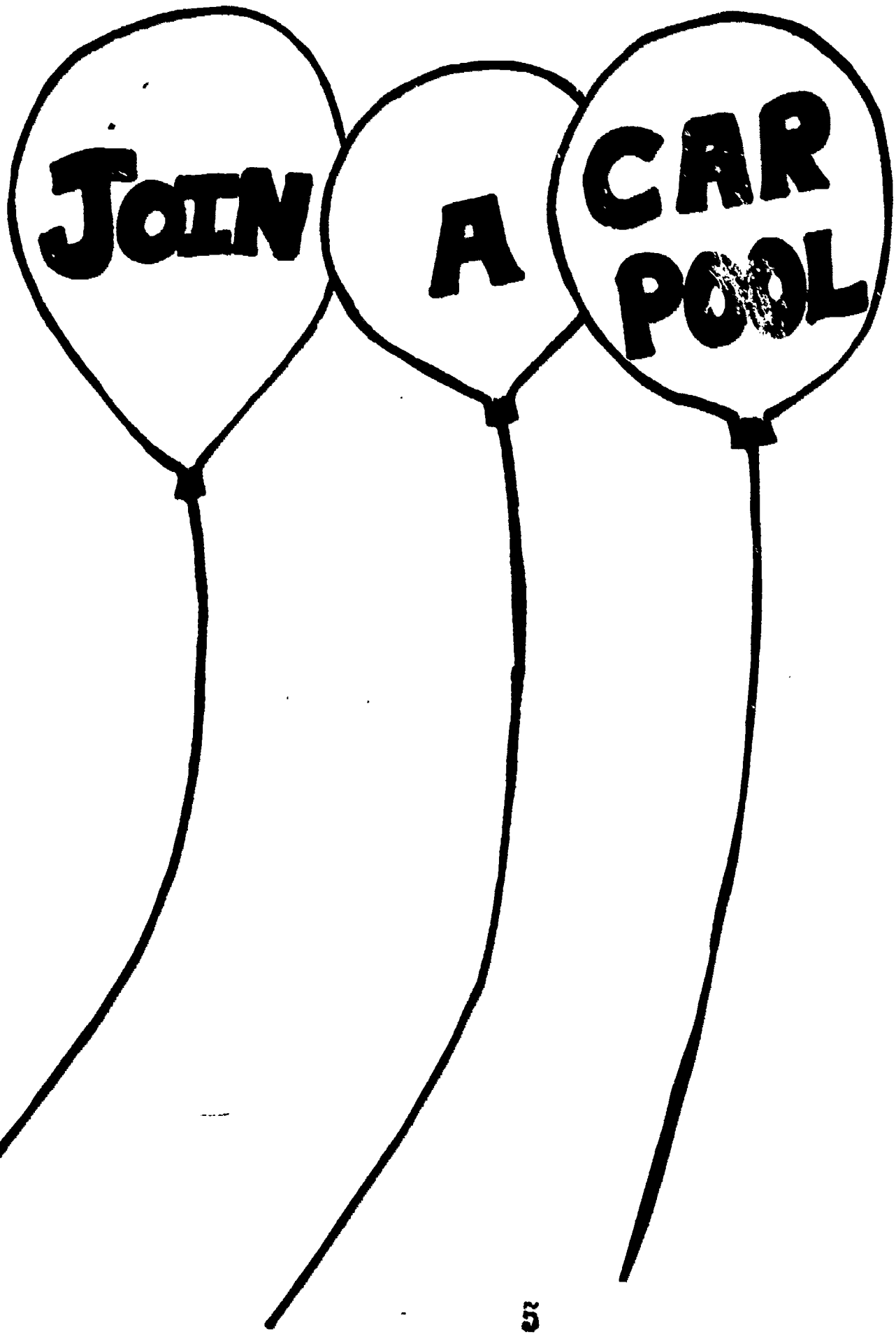
c. The College or University's public information office can be a good resource for developing press releases and making contact with T.V. and radio stations.

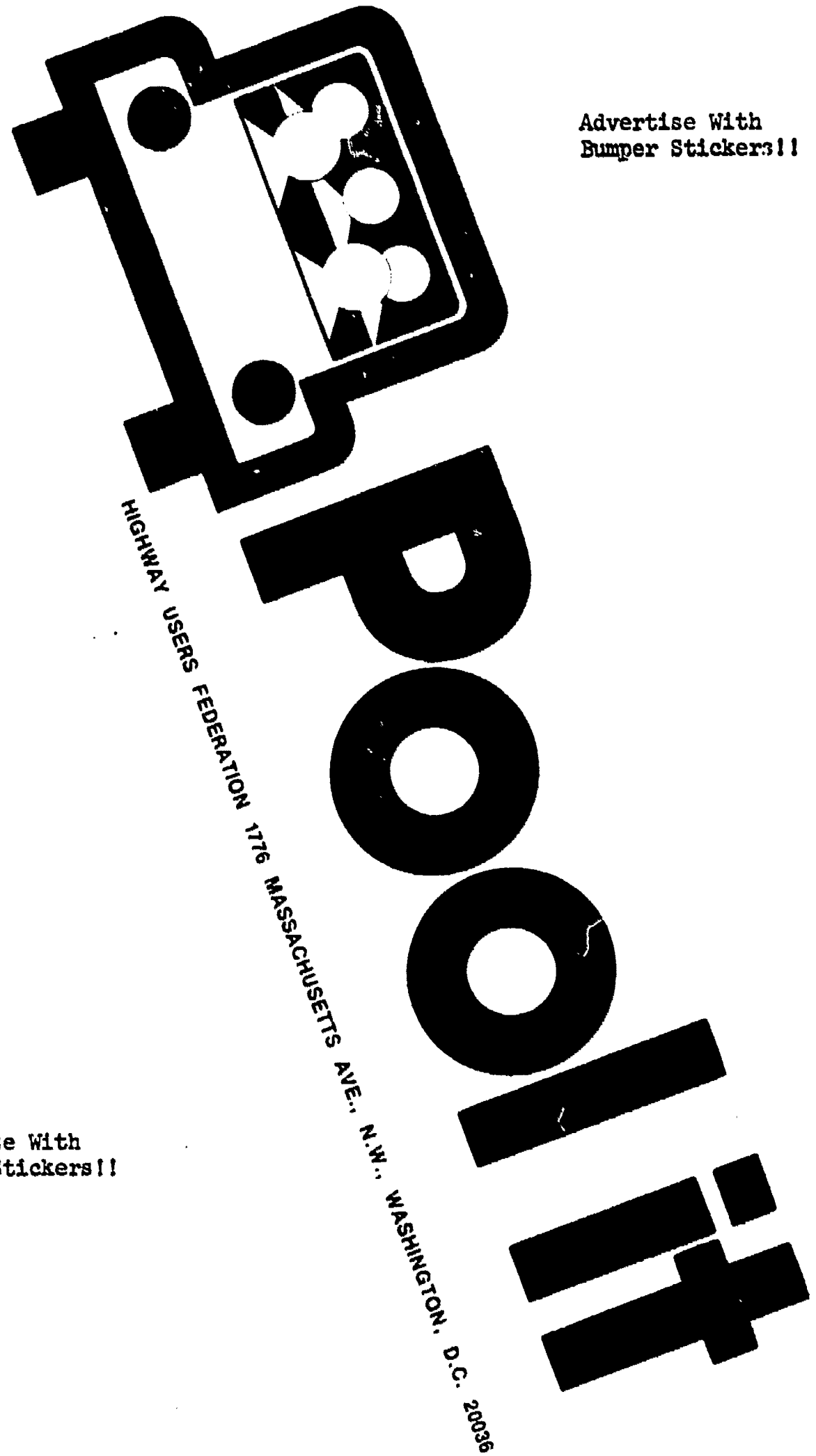
d. Miscellaneous methods: Radio spot announcements - commuters often listen to their car radio on the way to and from school. Use free public service announcements on popular stations to advertise the program.

The campus radio network can be used to reach commuters while they are on campus; for example, broadcast in the student union or dining hall facilities.

Design flyers, bumper stickers, decals or brochures which identify and give symbolic status to the carpool program.

Use some creative approaches to capture attention such as, to advertise via free helium filled balloons or by having students wear sandwich boards in commuter activity centers; such as the student union






Advertise With
Bumper Stickers!!

Advertise With
Bumper Stickers!!

## Incentives for Carpooling

People often know more about the disadvantages of carpooling than they know of the advantages. Commuters value their independence and are satisfied with driving their own car. They are often resistant to changing this habit. Anyone can find an excuse for not joining a carpool! A large scale promotion of the advantages of carpooling is necessary to help overcome this initial state of resistance. The addition of extra incentives is often helpful in getting commuters to start trying a carpool system.

A. Advantages of Carpools

1. Costs: The expense of commuting to school can be a substantial burden to many students. The student who lives ten miles from school can pay as much for travel expenses as he or she would pay for a room in a dormitory.

Cost of operating an automobile round trip to school*

| If you drive alone | | | Cost of being in a 3 person carpool | |
|---|---|---|---|---|
| Total Miles | Cost per day | Cost per week | Cost per day | Cost per week |
| 5 | $ .88 | $ 4.40 | $ .29 | $ 1.46 |
| 10 | $1.76 | $ 8.80 | $ .58 | $ 2.92 |
| 15 | $2.64 | $13.20 | $ .88 | $ 4.40 |
| 20 | $3.42 | $17.10 | $1.14 | $ 5.70 |
| 25 | $4.40 | $22.00 | $1.46 | $ 7.33 |
| 30 | $5.28 | $26.40 | $1.78 | $ 8.80 |
| 35 | $6.16 | $30.80 | $2.05 | $10.28 |
| 40 | $7.04 | $35.20 | $2.34 | $11.73 |

* Figures are from U.S. government statistics:
Gas - 4¢ a mile; Maintenance - 1.5¢ a mile; Insurance - 4¢ a mile;
Depreciation - 8¢ a mile

2. Environment - Carpooling presents an excellent opportunity for commuters to "do their part" in reducing air pollution. Some will respond to the posting of an air quality index. Measuring the air quality on your campus would be a start at identifying the extent of your problem.

3. Energy - Carpooling provides an opportunity to conserve fuel during the energy crises.

4. Convenience - Carpooling provides a chance for rest and relaxation rather than having to fight driv in heavy traffic every day.

5. Community - Carpooling can help in providing a social interaction for commuter colleges which must find positive ways to fight alienation, non-identification and the need for reference groups.

B. Incentives to join carpools:

1. Designate priority parking areas at the best locations on the campus, e.g. close to the Union, classroom buildings, etc.

2. Reduced parking fees

3. Priority registration for courses

4. Distribute free tickets for a campus event

5. Gifts or discount coupons from local merchants

6. Many students are hesitant to form carpools with people they have not previously met. One of the more successful methods to overcome this has been to organize "get acquainted" meetings in different geographic areas at the beginning of a semester. Students have the opportunity to meet others from their area, compare schedules, and form carpools immediately. Freshmen and transfer orientation programs provide a good opportunity to promote carpools before students develop their behavior and transportation patterns. Get them started on the right foot.

7. Insurance premium reductions.

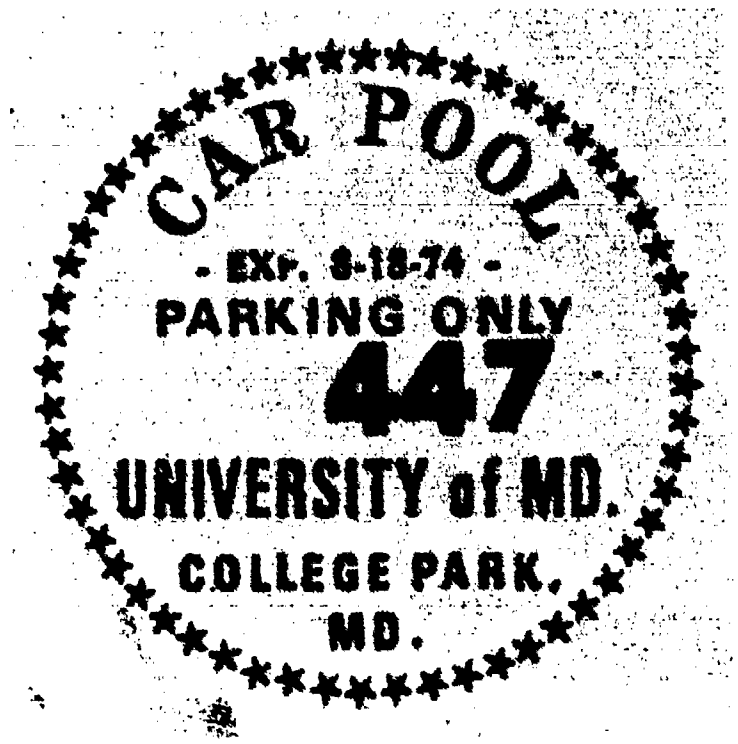
## Carpool Promotion at the University of Maryland

The carpool promotion was begun during summer orientation. The difficulties of finding a parking space were presented through a student made film entitled Parking Lot 1. Students were encouraged to help solve this problem by forming carpools. Through this program 500 interested freshmen were attracted to the program.

During the fall registration time the University launched a large publicity campaign with a promotion and publicity grant from Amoco. This activity was designed to spark student interest in joining carpools. Flyers urging participation in carpools were posted on campus the day before classes started; copies of the flyer also appeared in the campus newspaper. To overcome initial resistance to carpooling all students who actually formed carpools were offered a free daisy shirt and a guaranteed parking space.

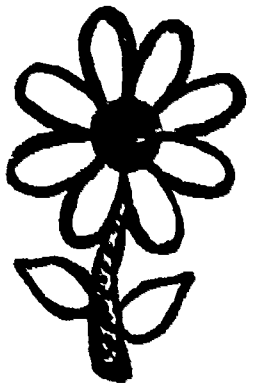
On the first day of classes a registration table was set up in front of the student union. Five TV stations covered the kickoff; the presence of TV cameras and crews helped considerably in drawing attention to carpool registration.

As a result of this heavy publicity, more than 2,000 students filled out carpool applications by the end of the first week of classes.

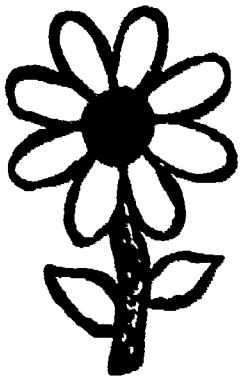



Students Who Joined Carpools
Received a Guaranteed
Parking Space for their Carpool

THE UNIVERSITY OF MARYLAND CARPOOL PROMOTION FLYER



# FIGHT POLLUTION Join A Car Pool



**SAVE WEAR AND TEAR ON YOUR CAR, SAVE GASOLINE MONEY, SAVE TIME HUNTING A PARKING SPACE AND HELP FIGHT POLUTION.**

How do you do all of this? Just form a carpool with at least two other people. In appreciation of your efforts in helping to solve the parking, traffic congestion and pollution problems on campus, you will receive a free daisy gift* and a conveniently located guaranteed parking space.

If you can't get a carpool together, we'll help you form one. Fill out the card below, and we'll send you a list of students who live near you with similar class schedules.

That's all there is to it — just get a carpool together and claim your reserved parking space and free daisy gift at the Office of Commuter Services, Room 1211 H, Student Union Building. Have questions? Call 454-5274;

*Gifts limited to the first 500 students who form carpools.

If one person fights pollution, others around him see the beauty of it.

JOIN A CARPOOL

Name_____

Address_____

City. State_____

Zip Code _____ Phone # _____

Have a Car? yes _____ no _____

M W F Arrive _____ M W F Depart _____

T Th Arrive _____ T Th Depart _____

Return to:

Office of Commuter Affairs, 1211 Student Union
University of Maryland, College Park, Md.

## Matching Riders

The process of matching students, faculty and staff can be accomplished in various ways. The U.S. Department of Transportation suggests it is usually more economical to use a computer to match people when the number interested exceeds 300. Where the potential of interested persons is less than 300, a hand matching or self matching technique is easy and economical. Past experience suggests that approximately 10% of the population will register for a carpool. If a computer system is not available, yet the number of potentially interested suggests that computers would be the best matching method, local government organizations might be of assistance. They often have provisions for outside organizations or may be willing to undertake such operations. Organizations using the Federal Highway Administration computer program are listed in the next section as possible resources for establishing a computer matching program.

### Matching Time Schedules

It is difficult to match exact arrival and departure times of students, faculty and staff as there are so many different schedules. Experience has shown that commuters are willing to be somewhat flexible in their arrival and departure times. Those who travel a long distance are usually more flexible than the short distance commuters. Several methods of time matching have been tried:

1. Schools with a large percentage of long-distance commuters have had applicants check a schedule similar to the one shown below:

| Mon. Wed. Fri. | Tues. Thurs. |
|---|---|
| ☐ arrive morning, depart morning | ☐ arrive morning, depart morning |
| ☐ arrive morning, depart afternoon | ☐ arrive morning, depart afternoon |
| ☐ arrive afternoon, depart afternoon | ☐ arrive afternoon, depart afternoon |

2. Schools with a large percentage of short-distance commuters have used forms where students indicate their exact schedules. These schedules are matched with others that do not differ by more than two hours, e.g. a driver who wants to arrive at 9:00 a.m. will be matched with all who are planning on arriving 8:00 a.m., 9:00 a.m. and 10:00 a.m.

Matching Geographic Areas

A critical aspect in carpool matching is identifying the areas where carpools can be formed with a minimum of extra travel distance. The areas of highest density and those in close proximity of the campus should be much smaller than those areas which are sparsely populated or a great distance from the campus. Long distance commuters find it less inconvenient to travel two miles for riders than do the short distance commuters. Several methods of designating carpool areas are described below:

1. Zip Code Matching: People with the same zip code are matched.
2. Grid Matching: The area surrounding the campus is labeled by horizontal and vertical grids similar to a road map. Commuters are matched with others living in their grid area. The U.S. Department of Transportation suggests that one square mile areas are acceptable in high density regions while areas ranging to four or more square miles are acceptable in less developed or far away regions.
3. Matching by Travel Routes: This system of dividing the area is the most practical for commuters to locate the most convenient carpool riders, although it is the most complex system to design. The first step is to study the commuter routes and approaches to campus: identify the major access roads to the campus, the major highways that lead to these access roads, and the proportion of commuters who use each of these roads. An example of such a study is illustrated below.

The carpool areas are those areas surrounded by the major highways. The areas can be subdivided if it is a high density area. Commuters pick up riders on their way to the major highway.

# The University of Minnesota Carpool Application Form

## APPLICATION FORM — U OF M PERSONALIZED COMPUTER-MATCHED CAR-POOL SERVICE

It is essential that the entire application form be completed either by typing or printing clearly using INK.

Name (First – Initial – Last) _____ Student I.D. No. _____

Address _____ (House Number / Street Name or Number / Rural Rte. No. (If Applicable) / Ave.–St.–Rd. Blvd.–Pkwy. Dr.–etc. / No–So E–W–SW NE–etc.)

City* _____ State _____ Zip _____

*Must be municipality – i.e. Richfield, not Minneapolis or Roseville, not St. Paul

Telephone Numbers: Home _____ Work _____ Today's Date _____

**Travel Preferences** (Check One)

I prefer to:

- Ride Only ☐
- Share Driving ☐

**Preferred Arrival-Departure Point**** (Place an "X" in the appropriate box or boxes)

| | MWF | T–Th |
|---|---|---|
| Minneapolis Campus | ☐ | ☐ |
| St. Paul Campus | ☐ | ☐ |

**Time Schedule**** (Fill in Time Preferences indicating a.m. or p.m.)

| | MWF | T–Th |
|---|---|---|
| Arrival time at "U" | | |
| Departure time from "U" | | |

**University Classification** (Check One)

- Undergraduate ☐ 1
- Graduate ☐ 2
- Civil Service ☐ 3
- Faculty ☐ 4
- Adult Special ☐ 5

**EXAMPLE: If you desire to arrive at the Minneapolis Campus at 8:00 a.m. on Monday, Tuesday, Wednesday, and Friday, place an "X" after *Minneapolis Campus* and below both *MWF* and *T–Th* under the "Preferred Arrival-Departure Point" heading. Then indicate 8:00 a.m. after *Arrival time* below both *MWF* and *T–Th* under the "Time Schedule" heading. Any slight variations in arrival-departure schedules can be arranged with others matched in your car pool.

Deposit this form in any special car pool container located near the information counter in: Coffman Union, Morrill Hall, the St. Paul Student Center, the West Bank Union OR send it via the U.S. or Campus Mail System to: University Transit Services Office, 224 Northrop Auditorium, Minneapolis, Minnesota 55455.

*Deadlines for Returning Application Forms:*

For Fall Qtr. September 10 — For Winter Qtr. December 12 — For Spring Qtr.: March 8

NOTE: By submitting this card, you authorize the University to distribute your address and telephone number to other potential car poolers.

Further information is available at: University Transit Services Office 224 Northrop Auditorium (373-0374)

At the beginning of each quarter, the computer prepares a notice of suggested time and travel patterns for each person.

To date, the University estimates that almost 1,000 students have been persuaded to join in carpools. Over half of these pools consist of three or more riders. For further information, write: Roger G. Huss, Transit Coordinator, 224 Northrup Memorial Auditorium, University of Minnesota, Minneapolis, Minnesota 55455.

## Informing Commuters of Prospective Carpool Participants

The process of informing and matching students, faculty, and staff in diverse geographic areas can be accomplished in various ways. In all types of matching procedures it is important to clarify that it is the responsibility of each person to contact others in their area to make arrangements for forming the carpool.

A. Ride Board: people form their own carpools

1. Ride Boards can be as simple as a reserved space on a bulletin board. This can serve as a clearinghouse for rides needed, riders wanted, etc.

2. A more elaborate ride board system is illustrated on the following page. Label a hook or a pocket for each area on the map. People interested in carpooling fill out a "ride wanted" or "riders wanted" card, and hang it on the hook for their area. It has been helpful to have these cards in different colors.

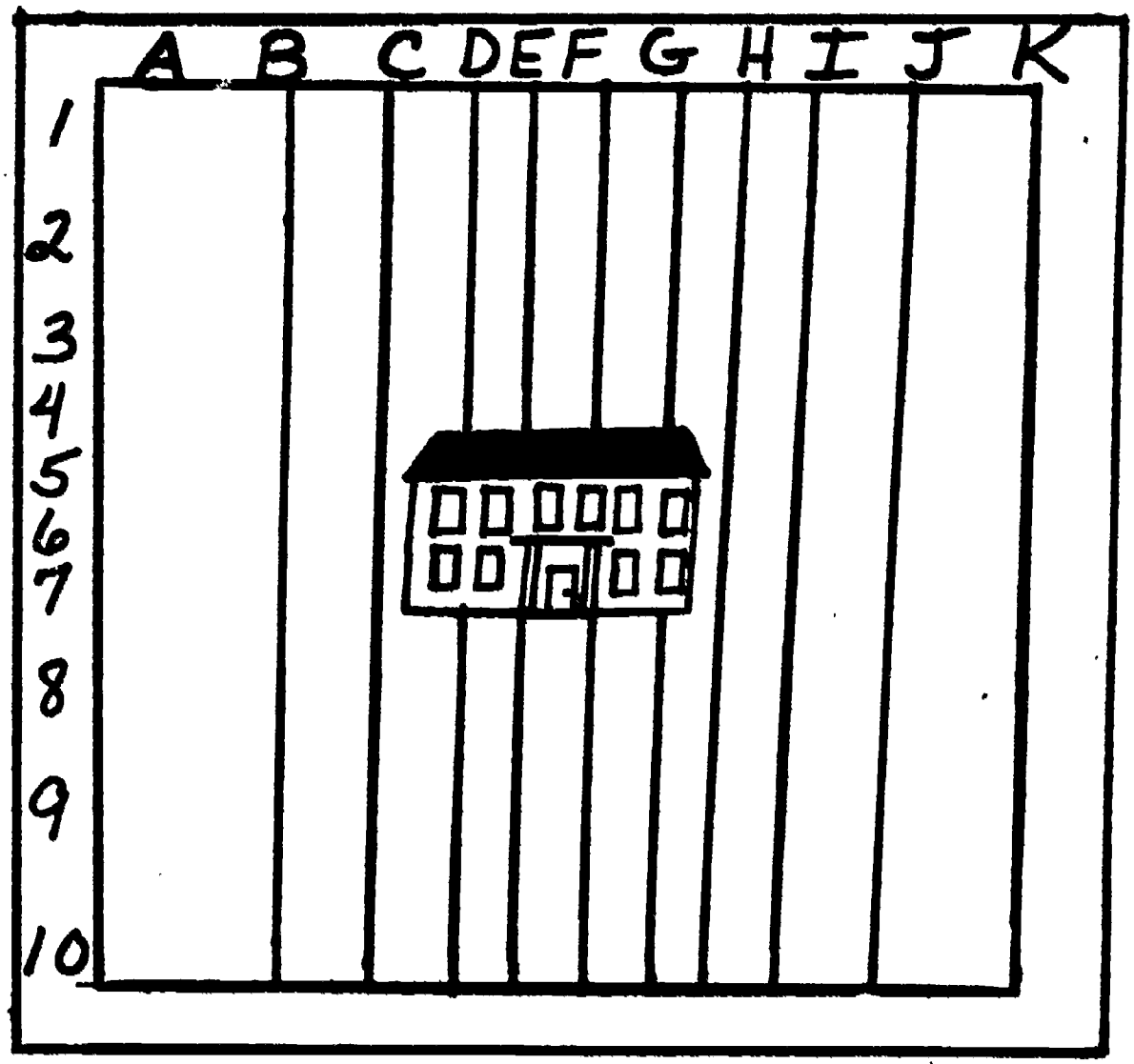
B. Master List: people form their own carpools

A single master list of interested participants can be compiled and kept in a central location of three or four areas. The names can be filled by town, section of a city, or by zip code. This is especially helpful for new people and for those whose situations or locations change. They can use this service to help establish or join existing carpools.

C. Area Lists for Each Person: The names and telephone numbers of all persons in a given area are printed and distributed to each person from the area. The lists can be prepared by hand or by computer. When the lists have been prepared, announcements can be made that they are available for distribution, or they can be mailed to each person.

# THE RIDE BOARD

Post a map of the area surrounding your school. Label it with grid codes similar to a road map. Commuters fill out one of the cards illustrated below and hang it on a hook that corresponds to their grid number.




JOIN A CARPOOL
Grid #_____

Ride Wanted

Name_____
Address_____

_____
Phone_____

Arrival MWF_____
Departure MWF_____

Arrival T TH_____
Departure T TH_____

Remarks_____

_____
Date:

JOIN A CARPOOL
Grid #_____

Riders Wanted

Name_____
Address_____

_____
Phone_____

Arrival MWF_____
Departure MWF_____

Arrival T TH_____
Departure T TH_____

Remarks_____

_____
Date:

Computer List to be distributed to each person

Car Pool / Bus Pool Roster For

Doe Jane
6261 64th Ave. Apt. 5
Riverdale, Md. 20840

ID: 0111000000000987

Employment Site: Maryland University

You are encouraged to contact the following individuals who have indicated an interest in joining with you to form a carpool.

| No. | Name | Business Phone | Airline Dist (Mi) | Work Hours |
|---|---|---|---|---|
| 01 | Isler Joel Ira | 699 9570 | 0.00 | 0800 - 1400 |
| 02 | Epstien Michael S. | 559-8664 | 0.00 | 0800 - 1500 |
| 03 | Nagy Albert Francis | 779 0911 | 0.00 | 0800 - 1600 |
| 04 | Turska Kim Edward | 939 2583 | 0.00 | 0800 - 1700 |
| 05 | Theriault Anne | 864 8360 | 0.00 | 0800 - 1200 |
| 06 | Anderson Daniel Robert | 474 8465 | 0.33 | 0800 - 1100 |
| 07 | Ainsworth Bruce H. | 577 1564 | 0.33 | 0800 - 1400 |
| 08 | Jacques Lorraine Donna | 459 7654 | 0.33 | 0900 - 1500 |
| 09 | Reed Susan M. | 927-0346 | 0.38 | 0900 - 1100 |
| 10 | Baldridge Debbe L. | 779-1277 | 0.43 | 0900 - 1200 |
| 11 | Mazia Burt J. | 699-9099 | 0.69 | 0900 - 1300 |
| 12 | Adams Donald A. | 927 9876 | 0.69 | 1000 - 1400 |
| 13 | Fudold Suzanne M. | 277 9754 | 0.74 | 1000 - 1200 |
| 14 | Freyder Charles R. | 779 1494 | 0.77 | 1000 - 1100 |
| 15 | Howell John W. | 927 6543 | 0.88 | 1000 - 1400 |
| 16 | Wong Lori Olivia | 927 8764 | 0.88 | 1000 - 1500 |
| 17 | Boswell Larry D. | 277 9845 | 0.99 | 1000 - 1600 |

## GROUPS USING
## THE
## FHWA COMPUTERIZED CARPOOL MATCHING PROGRAM

| | | |
|---|---|---|
| 1. | Tennessee Department of Transportation | Nashville |
| 2. | City of Los Angeles Department of Traffic | Los Angeles |
| 3. | City of Dallas Department of Traffic | Dallas |
| 4. | Southeastern Wisconsin Regional Planning Commission | Waukesha |
| 5. | North Carolina A&T State University Transportation Institute | Greensboro |
| 6. | Florida Department of Transportation | Tallahassee |
| 7. | Baltimore Federal Executive Board | Baltimore |
| 8. | San Francisco Federal Executive Board | San Francisco |
| 9. | Maricopa Association of Governments | Tempe, Arizona |
| 10. | Defense Supply Agency, Defense Contract Administration Services Region, Detroit | Detroit |
| 11. | Gleason Works | Rochester, New York |
| 12. | Lockheed Missiles and Space Co., Inc. | Sunnyvale, California |
| 13. | St. Charles County, Missouri | St. Charles, Missouri |
| 14. | Maryland Department of Transportation | Baltimore |
| 15. | Contra Costa County, California | Contra Costa County |
| 16. | Federal Aviation Administration, Northwest Region | Seattle |
| 17. | Com-Bus | Long Beach, California |
| 18. | U.S. Environmental Protection Agency | San Francisco,California |
| 19. | City of Baltimore Department of Transit and Traffic | Baltimore |
| 20. | Comprehensive Planning Organization | San Diego, California |
| 21. | City of Hamilton Department of Traffic | Hamilton, Ontario |
| 22. | Texas Highway Department | Austin |
| 23. | Kentucky Department of Transportation | Frankfort |
| 24. | U.S. Environmental Protection Agency | Washington, D.C. |
| 25. | State of Hawaii | Honolulu |
| 26. | Montgomery-Greene County Transportation and Development Planning Program | Dayton |
| 27. | IBM Corporation | Bethesda, Maryland |
| 28. | U.S. Army, Computer Systems Command | Ft. Belvoir, Virginia |
| 29. | Walter Reed Army Medical Center | Washington, D.C. |
| 30. | Tennessee Valley Authority | Knoxville |
| 31. | Puget Sound Governmental Conference | Seattle |
| 32. | General Services Administration | New York |
| 33. | Georgia Institute of Technology | Atlanta |
| 34. | D.C. Department of Highways and Traffic | Washington, D.C. |
| 35. | State of New York, OGS Computer Center | Albany |
| 36. | Washington State Highway Commission | Olympia |
| 37. | United Air Lines | Denver |
| 38. | San Bernardino County | San Bernardino, Calif. |
| 39. | Bell Laboratories | Greensboro, North Carolina |
| 40. | Kentucky Department of Transportation | Frankfort |
| 41. | Delaware Valley Regional Planning Commission | Philadelphia |
| 42. | Hunt-Wesson Foods, Inc. | Fullerton, California |
| 43. | Commonwealth of Puerto Rico, Department of Transportation and Public Works | San Juan |

| | | |
|---|---|---|
| 44. | Pennsylvania Department of Transportation | Harrisburg |
| 45. | National Aeronautics and Space Administration | Cleveland |
| 46. | Oak Ridge National Laboratory | Oak Ridge, Tennessee |
| 47. | Office of Systems and Finance Management, DCASR, Detroit | Detroit |
| 48. | New York State Department of transportation | Albany |
| 49. | Social Security Administration | Baltimore |
| 50. | Bendix Vorporation | Kansas City, Missouri |
| 51. | SID, Security Data, Inc. | Walnut Creek, California |
| 52. | Texas Air Control Board | Austin |
| 53. | Fort Worth City Planning Department | Fort Worth, Texas |
| 54. | City of Tucson | Tuscon, Arizona |
| 55. | Selnec Passenger Transport Executive | Manchester, England |
| 56. | FHWA, Arkansas Division | Little Rock |
| 57. | Burlington House Area Rugs | Monticello, Arkansas |
| 58. | Los Angeles Department of Water & Power | Los Angeles |
| 59. | University of California | Livermore |
| 60. | National Aeronautics and Space Administration | Moffitt Field, California |
| 61. | San Bernardino County | San Bernardino |
| 62. | Boeing Computer Services, Inc. | Washington,D.C. |
| 63. | Federal Aviation Administration | Moffitt Field, California |
| 64. | U.S. House of Representatives, Committee on House Administration | Washington, D.C. |
| 65. | Washington Metropolitan Area Transit Authority | Washington, D.C. |
| 66. | State of Delaware | Dover |
| 67. | U.S. Senate, Data Processing | Washington, D.C. |
| 68. | Lockheed Aircraft | Burbank, Califoria |
| 69. | University of North Florida | Jacksonville |
| 70. | Metropolitan Dade County | Miami, Florida |
| 71. | Automatic Data Processing | Miami, Florida |
| 72. | Georgia State University | Atlanta |
| 73. | Atlantic Richfield Company | Harvey, Illinois |
| 74. | Illinois Department of Transportation | Springfield |
| 75. | U.S. Army Armament Command | Rock Island, Illinois |
| 76. | Indianapolis Department of Transportation | Indianapolis, Indiana |
| 77. | University of Kentucky | Lexington, Kentucky |
| 78. | Capital Region Planning Commission | Baton Rouge, Missouri |
| 79. | East-West Gateway Coordinating Council | St. Louis, Missouri |
| 80. | University of Massachusetts | Amherst |
| 81. | Kansas City Data Processing Division | Kansas City, Missouri |
| 82. | Michigan Department of State Highway | Lansing |
| 83. | International Business Machines Corporation | Gaithersburg, Maryland |

| | | |
|---|---|---|
| 84. | Vitro Laboratories | Silver Spring, Maryland |
| 85. | C&P Telephone Company | Silver Spring, Maryland |
| 86. | U.S. Air Force | Richards-Bebaur AFB, Missouri |
| 87. | Commercial Credit Corporation | Baltimore |
| 88. | St. Clair County Community College | Port Huron, Michigan |
| 89. | Grand Rapids Public Schools | Grand Rapids, Michigan |
| 90. | McDonnell Douglas Automation Company | St. Louis, Missouri |
| 91. | International Business Machine Corp. | East Lansing, Michigan |
| 92. | Guilford County | Greensboro, North Carolina |
| 93. | City of Lincoln | Lincoln, Nebraska |
| 94. | State of Nebraska | Lincoln, Nebraska |
| 95. | County of Suffolk | Hauppauge, New York |
| 96. | Corning Community College | Corning,New York |
| 97. | Nassau County | Mineola, New York |
| 98. | Sardia Laboratories | Albuquerque, New Mexico |
| 99. | Grumman Data Systems Corporation | Bethpage, New York |
| 100. | New York State Department of Transportation | Babylon |
| 101. | Town of Islip | Islip, New York |
| 102. | Rensselaer Polytechnic Institute | Troy, New York |
| 103. | State University of New York | Buffalo |
| 104. | National Time Sharing and Data Services, Inc. | Buffalo |
| 105. | Duke University | Durham, North Carolina |
| 106. | Burlington Management Services Company | Greensboro, North Carolina |
| 107. | Union County | Elizabeth, New Jersey |
| 108. | Ohio Department of Transportation | Columbus, Ohio |
| 109. | Oregon State Highway Division | Salem |
| 110. | State of Oklahoma Department of Highways | Oklahoma City |
| 111. | Oklahoma State Department of Vocational and Technical Education Data Processing | Oklahoma City |
| 112. | Greater Cincinnati Federal Executive Board | Cincinnati |
| 113. | Environmental Protection Agency | Cincinnati |
| 114. | Information Sciences, Inc. | Portland, Oregon |
| 115. | Mobay Chemical Company | Pittsburgh, Pennsylvania |
| 116. | Delaware Valley Regional Planning Commission | Philadelphia, Pennsylvania |
| 117. | Lehigh University | Bethlehem, Pennsylvania |
| 118. | Commonwealth of Puerto Rico, Department of Transportation and Public Works | San Juan |
| 119. | Pennsylvania Department of Transportation | Harrisburg |
| 120. | Genesco, Inc. | Nashville, Tennessee |
| 121. | Ventex | Houston |
| 122. | Utah State Department of Highways | Salt Lake City |
| 123. | Wisconsin Department of Transportation | Madison |
| 124. | West Virginia Department of Highways | Charleston |
| 125. | FHWA, Federal Highway Projects Division | Vancouver, Washington |

## Resources on Carpools

Carpool and Buspool Matching Guide (3rd edition)

A 31 page booklet which describes successful car, van and bus programs. The last section is an introduction to the FHWA computer program for carpool matching. Free upon request: U.S. Department of Transportation, Federal Highway Administration, Washington, D.C. 20590.

Carpools and Buses: Two Ways to Cut Commuting Costs and Ease Traffic Congestion

A ten page pamphlet which illustrates the economy of leaving the car and joining a pool. 15¢ a copy: Highway Users Federation, 1776 Massachusetts Ave., N.W., Washington, D.C. 20036.

Industrial Package for Business and Industry

This package was prepared by a group of concerned citizens who wanted to fight the smog problems. It contains practical suggestions on how to start a carpool program. Free upon request: Operation Oxygen, P.O. Box 5975, Pasadena, California 91107.

Transportation Research Opportunities for Universities and Contracts Under the Program of University Research

These booklets provide prospective contractor universities with information on the DOT Program of University Research which is designed to increase the contributions of universities to the solutions of national, state, regional and local transportation problems. Free upon request: Office of University Research, Office of the Secretary, U.S. Department of Transportation, Washington, D.C. 20590.

Environmental Resource Packets

These resource packets are directed to college science teachers who wish to incorporate environmental materials in their courses and/or to become resource people for their community. They consist of a review paper or papers and an annotated bibliography. Two packets will be published this spring: "Automobiles and Air Pollution" and "Urban Transportation": $1.00 per packet: Environmental Resource Packet Project, Department of Physics and Astronomy, University of Maryland, College Park, Maryland 20742.

American School and Business, January, 1974.

This issue has several articles devoted to the energy crisis. The article "Latest in Campus Transportation" describes innovations in handling bicycles, autos and buses on campuses across the country. Subscriptions are available @ $15.00 a year: American School and University, 134 N. 13th St., Philadelphia, Pa. 19107.

Educational Facilities Laboratory is planning to produce a special report on college and university transportation issues. Presently they distribute a newsletter, "Planning" to college planners and others at national, state, and regional levels who are concerned with planning. For information, write Educational Facilities Laboratory, 477 Madison Avenue, New York, N.Y. 10022.

DOT Press Releases: You can receive free up-to-date information on mass transit, carpools, highway safety, etc. In the letter of request, specify if you wish to receive press releases from certain departments only, otherwise releases are sent from all departments.

Department of Transportation
Attention: Mailing List, Office of Public Affairs
Room 10106, 400 7th St., S.W.
Washington, D.C. 20590

## Resources on Campus Bus Systems

The University of Iowa operates a shuttle bus system from parking income and a portion of student fees. The eighteen bus system connects all parking lots with the main campus. For further information, write: John Dooley, Director, Transportation and Security, University of Iowa, Iowa City, Iowa 52242.

Campus Bus Systems is a booklet that describes the bus service systems that have worked well at major universities. Free upon request: GMC Truck and Coach Division of G.M. Corporation, Attn. Mr. E.W. Hall, 660 S. Blvd. East, Pontiac, Michigan 48053.

Pennsylvania State University investigated the costs, energy consumption and demand fulfillment of three campus transportation systems: a conventional bus system, a skybus network, and an underground moving sidewalk. The university subsequently contracted for a bus service which required no installation costs and less annual costs. For copies of the reports and further information, write: Dr. Thomas B. Davinroy, Department of Civil Engineering, the Pennsylvania State University, 203 Old Main, University Park, Pennsylvania 16802.

The University of Massachusetts at Amherst through a $700,000 grant from the Urban Mass Transportation Administration, is documenting the effect of a free intercity and campus shuttle bus system supported by campus parking restrictions. For further information, write: Dr. William Goss, Project Director, Marsten Hall, University of Massachusetts, Amherst, Massachusetts 01002.

## Resources on Bicycle Systems

The University of California at Davis has joined forces with the City of Davis to develop one of the most extensive areawide systems of special bicycle facilities in the United States. Information and descriptions are available in:

City of Davis Bicycle Circulation and Safety Study, $3.00 a copy: DeLeuw, Carther & Company, 1256 Market Street, San Francisco, Calif. 94102

Bikeway Planning Criteria and Guidelines, $4.00 a copy: California Division of Highways, State Department of Public Works, 1120 N. Street, Sacramento, California 95814.

The Bicycle Institute of America, 122 East 42nd Street, New York, N.Y. 10017 provides information and many free publications on bicycle safety, development of bikeways and legislation.

Bicycles in the University Community is a technical paper available @ $.50 a copy. Association of Physical Plant Administrators of Universities and Colleges, Suite 510, One Dupont Circle, Washington, D.C. 20036.

Michigan State University prohibits student automobiles on campus during class hours. Students may park their cars and ride a bicycle on the 12 miles of bike paths. For further information, write: Mr. Milton Barron, Director, Campus Park & Planning, 310 Manley Miles Building, Michigan State University, East Lansing, Michigan 48824.

The University of Illinois also provides bike paths to accommodate an estimated 15,000 bicycles on campus. The paths started as a single lane, 30 inches wide but were quickly changed into 72 inch concrete pathways. For further information, write: Mr. John Baerwald, Director, Highway Traffic Center, 418 Engineering Hall, University of Illinois, Urbana, Illinois 48824.

Sample Survey to Investigate Transportation Patterns

1 ☐☐☐☐☐☐☐☐☐☐

## FOR NON-DORMITORY RESIDENTS ONLY

12 [1]

### UNIVERSITY OF MARYLAND STUDENT TRANSPORTATION SURVEY

The University, in cooperation with the University Master Plan and the Maryland-National Capital Park and Planning Commission, is seeking ways to improve transportation access to and from the campus as well as within the campus. Your cooperation in completing this questionnaire will provide information to assist in the planning for needed improvements. When completed, please return this questionnaire to your class instructor. Thank you.

NOTE: For the purpose of this survey the CAMPUS is defined as <u>including</u> the principal academic buildings, classrooms, library, student union, dining halls, athletic facilities, etc. and <u>excluding</u> dormitories, fraternities, sororities, and other residences.

1. My present school year residence is:

☐ Fraternity or Sorority House; Name _____ 13☐

☐ Off-Campus (home, apartment, rooming house, etc.)

_____
(Complete address and mailing zip code)

Is off-campus residence shared with other University of Maryland students? ☐Yes ☐No 14☐

2. When I first arrived on campus <u>today</u>, I came from:

☐ My present school year residence (as in No. 1 above)

☐ Place of work

_____
(Complete address and mailing zip code) 15☐

☐ Eating establishment _____

_____
(Number of dining hall or name/address of eating facility)

☐ Other _____ 16☐
(Please Specify)

_____
(complete address, building name, location)

3. When I finally leave the campus <u>today</u>, I intend to go to (check one):

☐ My school residence 17☐

☐ Place of work

☐ Eating establishment

☐ Other _____ 18☐
(Please Specify)

_____
(Complete address, location)

4. I usually arrive on the campus for my first class or activity (other than class) and leave after my last class or activity (other than class) at the following times: (Please write in times)

| DAY | ARRIVE | LEAVE |
|---|---|---|
| Monday | : ☐ am ☐ pm | : ☐ am ☐ pm |
| Tuesday | : ☐ am ☐ pm | : ☐ am ☐ pm |
| Wednesday | : ☐ am ☐ pm | : ☐ am ☐ pm |
| Thursday | : ☐ am ☐ pm | : ☐ am ☐ pm |
| Friday | : ☐ am ☐ pm | : ☐ am ☐ pm |

19 ☐☐☐☐
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43 ☐☐☐☐
47 ☐☐☐☐

5. a. Are you a licensed driver? ☐Yes ☐No 59☐
   b. If you are a licensed Maryland driver, what is the class of your license? ☐A - tractor-trailer ☐B - other trucks ☐C - bus ☐D - automobile ☐E - motorcycle 60☐
   c. What is your age? _____ years 61☐☐
   d. What is your class? ☐Freshman ☐Sophomore ☐Junior ☐Senior ☐Graduate 63☐
   e. What is your sex? ☐Male ☐Female 64☐

6. During this semester, I either own or have regular use of an automobile for the purpose of driving to and from the campus.

   ☐ Yes ☐ No 65☐

7. When I first came to the campus <u>today</u>, I got here primarily by (check one):

| | | |
|---|---|---|
| ☐ Driving an auto | ☐ Bus transit | 66☐ |
| ☐ Riding as an auto passenger | ☐ Taxi | |
| ☐ Driving a motorcycle or motorbike | ☐ Bicycling | |
| | ☐ Hitchhiking | |
| ☐ Riding as a motorcycle or motorbike passenger | ☐ Walking | |
| | ☐ Other _____ (Please Specify) | |

8. When I finally leave the campus today, I intend to go by (check one):

| | | |
|---|---|---|
| ☐ Driving an auto | ☐ Bus transit | 67☐ |
| ☐ Riding as an auto passenger | ☐ Taxi | |
| ☐ Driving a motorcycle or motorbike | ☐ Bicycling | |
| | ☐ Hitchhiking | |
| ☐ Riding as a motorcycle or motorbike passenger | ☐ Walking | |
| | ☐ Other _____ (Please Specify) | |

9. I estimate the following characteristics about my travel to the campus today:

   a. Total door-to-door time _____ minutes 68☐☐
   b. Total time spent in travel not riding in/on a vehicle (including time spent walking, waiting, transferring, parking) _____ minutes 70☐☐
   c. My out-of-pocket costs for making this trip was _____ cents (include only fares, metered parking fees, tips, car pool contributions, gasoline) 72☐☐☐

10. If I did not travel to and from the campus as I presently do, I would evaluate the following attributes of other means of travel as follows (check one box for each attribute):

| Attribute | Very Imp. | Imp. | Some Importance | Not Important |
|---|---|---|---|---|
| a. Door-to-door time | ☐ | ☐ | ☐ | ☐ |
| b. On time performance | ☐ | ☐ | ☐ | ☐ |
| c. Door-to-door service | ☐ | ☐ | ☐ | ☐ |
| d. Personal security | ☐ | ☐ | ☐ | ☐ |
| e. Cost of trip | ☐ | ☐ | ☐ | ☐ |
| f. Having a seat | ☐ | ☐ | ☐ | ☐ |
| g. Air conditioning | ☐ | ☐ | ☐ | ☐ |
| h. Frequency of service | ☐ | ☐ | ☐ | ☐ |
| i. Leg room | ☐ | ☐ | ☐ | ☐ |
| j. Frequency of system stops | ☐ | ☐ | ☐ | ☐ |
| k. Night service | ☐ | ☐ | ☐ | ☐ |
| l. Weekend service | ☐ | ☐ | ☐ | ☐ |
| m. Service to parking lots | ☐ | ☐ | ☐ | ☐ |
| n. Service to local business district | ☐ | ☐ | ☐ | ☐ |
| o. Radio/music | ☐ | ☐ | ☐ | ☐ |

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Questions 11 and 12 describe hypothetical systems being studied and therefore it should not be inferred that these systems will necessarily be implemented.

11. The University is considering several, alternative types of improved transportation services to, from, and within the campus. In order to assist us in determining the type and quality of service that should be provided, please answer the following questions:

A - Campus Shuttle - serving classrooms, library, student unions, other buildings, etc., dormitories, fraternities & parking lots.

| | |
|---|---|
| Would you use:<br>☐ Frequently ☐ Not Use<br>☐ Occasionally ☐ Don't Know | If you think you would use, how often should it run?<br>☐ 5 min. ☐ 10 min. ☐ 15 min.<br>☐ 20 min. ☐ 30 min. ☐ 60 min. |
| How closely should this serve you?<br>☐ door-to-door<br>☐ not over 1 min. walk<br>☐ not over 2 min. walk<br>☐ not over 5 min. walk<br>☐ not over 10 min. walk | Between what hours of operation should this service be provided?<br>From: _____ a.m. p.m.<br>To: _____ a.m. p.m. |
| What do you think is a fair price for this kind of service per ride?<br>☐ 5 cents ☐ 25 cents<br>☐ 10 cents ☐ 40 cents<br>☐ 15 cents ☐ 50 cents<br>☐ 20 cents | What do you think is a fair price for this kind of service per semester?<br>☐ 1 dollar ☐ 20 dollars<br>☐ 5 dollars ☐ 25 dollars<br>☐ 10 dollars ☐ 50 dollars<br>☐ 15 dollars |

B - Extended Campus Shuttle - service same areas as in A above, but extended to residential areas within 1 mile of campus and nearby College Park shopping and eating establishments.

| | |
|---|---|
| Would you use:<br>☐ Frequently ☐ Not Use<br>☐ Occasionally ☐ Don't Know | If you think you would use, how often should it run?<br>☐ 5 min. ☐ 10 min. ☐ 15 min.<br>☐ 20 min. ☐ 30 min. ☐ 60 min. |
| How closely should this serve you?<br>☐ door-to-door<br>☐ not over 1 min. walk<br>☐ not over 2 min. walk<br>☐ not over 5 min. walk<br>☐ not over 10 min. walk | Between what hours of operation should this service be provided?<br>From: _____ a.m. p.m.<br>To: _____ a.m. p.m. |
| What do you think is a fair price for this kind of service per ride?<br>☐ 5 cents ☐ 25 cents<br>☐ 10 cents ☐ 40 cents<br>☐ 15 cents ☐ 50 cents<br>☐ 20 cents | What do you think is a fair price for this kind of service per semester?<br>☐ 1 dollar ☐ 20 dollars<br>☐ 5 dollars ☐ 25 dollars<br>☐ 10 dollars ☐ 50 dollars<br>☐ 15 dollars |

C - Campus Commuter Service - serving commuters to the University of Maryland from Montgomery and Prince George's Counties.

| | |
|---|---|
| Would you use:<br>☐ Frequently ☐ Not Use<br>☐ Occasionally ☐ Don't Know | If you think you would use, how often should it run?<br>☐ 5 min. ☐ 10 min. ☐ 15 min.<br>☐ 20 min. ☐ 30 min. ☐ 60 min. |
| How closely should this serve you?<br>☐ door-to-door<br>☐ not over 1 min. walk<br>☐ not over 2 min. walk<br>☐ not over 5 min. walk<br>☐ not over 10 min. walk | Between what hours of operation should this service be provided?<br>From: _____ a.m. p.m.<br>To: _____ a.m. p.m. |
| What do you think is a fair price for this kind of service per ride?<br>☐ 5 cents ☐ 25 cents<br>☐ 10 cents ☐ 40 cents<br>☐ 15 cents ☐ 50 cents<br>☐ 20 cents | What do you think is a fair price for this kind of service per semester?<br>☐ 1 dollar ☐ 20 dollars<br>☐ 5 dollars ☐ 25 dollars<br>☐ 10 dollars ☐ 50 dollars<br>☐ 15 dollars |

28☐ 29☐ 30☐ 31☐☐☐☐ 35☐☐☐☐ 39☐ 40☐ 41☐ 42☐ 43☐ 44☐☐☐☐ 48☐☐☐☐ 52☐ 53☐ 54☐ 55☐ 56☐ 57☐☐☐☐ 61☐☐☐☐ 65☐ 66☐

12. In addition to the above conventional systems in Question 11, other ideas are being studied to reduce the demand for more campus roads and parking facilities by increasing the average auto occupancy. These ideas include:

A - Regular Commuter Car Pooling - all commuters who so desire would be matched via computer to all others who resided in the same area and had similar arrival and departure times on campus at least one day a week. Commuters could then form car pools on their own.

B - Irregular Commuter Car Pooling - car pooling is difficult if members of the pool have different schedules too often. Recognizing that commuters generally have different schedules on different days of the week, an idea is being studied whereby any driver may pick up riders rider without pre-arrangement. There will be several sites on campus where drivers and riders may be matched on their outbound trips. There will be special stops set up on all principal approach roads to the campus where campus-bound riders and drivers may collect. For security purposes, all drivers and riders must display their University identification cards. There would be pre-arranged fees for all points to or from the campus. Drivers who participated in this scheme would receive preferential treatment in campus parking facilities.

C - Commuter Jitney - another idea is being studied whereby several hundred commuters would be hired for part-time work as jitney drivers. Jitney drivers would either drive their own vehicles or University-provided vehicles from home to the University and receive reserved close-in parking spaces in the parking lots. Jitney drivers could pocket fares and thus receive an additional source of income. Jitney drivers would be selected on the basis of responsibility, reliability, residence address and class schedule. They would be required to drive a specific route on a specific schedule to and from the University and would be required to pick up (if vehicle capacity allows) all valid University commuters. Jitney drivers would receive free insurance coverage for their jitney driving services.

| | Regular Car Pool | Irregular Car Pool | Jitney |
|---|---|---|---|
| Do you think you would use? | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No |
| Would you use it as a driver or rider? | ☐ Driver ☐ Rider ☐ Not use | ☐ Driver ☐ Rider ☐ Not use | ☐ Driver ☐ Rider ☐ Not use |
| I would not use because: (Check all that apply) | ☐ problem with schedules ☐ concern about security ☐ need my car for business ☐ concern about wear and tear on car ☐ already have regular car pool ☐ doubtful if compatible driver/rider could be found ☐ other _____ (Elaborate) | ☐ problem with schedules ☐ concern about security ☐ need my car for business ☐ concern about wear and tear on car ☐ already hitch-hike ☐ doubtful if compatible driver/rider could be found ☐ other _____ (Elaborate) | ☐ problem with schedules ☐ concern about security ☐ need my car for business ☐ concern about wear and tear on car ☐ already hitch-hike ☐ other _____ (Elaborate) |

1 ☐☐☐☐☐☐☐☐☐☐☐☐ 12 ☐3

13 ☐ 14 ☐ 15 ☐☐☐☐☐☐ 20 ☐☐

22 ☐ 23 ☐ 24 ☐☐☐☐☐☐ 30 ☐☐

31 ☐ 32 ☐ 33 ☐☐☐☐ 35 ☐☐☐☐

Sample Survey to Investigate the Feasibility of a Bicycle System

********** UNIVERSITY OF MARYLAND COMMUTER BICYCLE SURVEY **********

The results of this survey will be used to plan a commuter bicycle system leading to the College Park Campus. The purpose of this survey is to determine the potential demand for such a system and along which routes the bikeways should be built. Your assistance in completing this survey will be greatly appreciated. If you have already completed this survey, please do not fill this one out.

**********

1. Status: ___ Student ___ Staff ___ Faculty 2. College _____

3. Zip code of your present local address: _____ 4. ___ Male ___ Female

5. Residence: ___ Off campus ___ Dorm ___ Sorority Fraternity 6. Age _____

7. Your present usual means of transportation to campus (omit if you live on campus):
___ Auto ___ Carpool ___ Walk ___ Bicycle ___ Bus ___ Motorcycle ___ Other

8. Do you presently own a bicycle? ___ Yes ___ No 9. How many speeds? ___

10. How often do you ride your bicycle per week?
___ for recreation ___ for commuting to campus ___ on campus

(WHEN ANSWERING THE FOLLOWING QUESTIONS, PLEASE ASSUME THAT A BICYCLE IS AVAILABLE TO YOU)

11. If convenient and safe bicycle riding and parking facilities were provided, would you use them to travel by bicycle to or from campus? ___ Yes ___ No

12. If yes, how often per week? _____ 13. If no, why not? _____

14. Which of the following factors would inhibit you from riding your bicycle to or from campus? (Circle those which apply)
a. rain b. snow c. fog d. night e. others _____

15. How far would you be willing to commute on a bicycle? ___ Miles ___ Minutes

If living on campus, go to 18

16. If you live far from campus and if proper facilities were available, would you take one mode of transportation (car, bus, etc.) partway to campus and then transfer to a bicycle to complete the trip? _____ Yes _____ No

17. If a bicycle pathway were built parallel to the route you now use for commuting to campus, how many miles (or fractions of miles) would you be willing to go out of your way to ride on the pathway? _____ number of miles

18. What features do you consider necessary for a bicycle system to meet your personal needs?

| | Necessary | Important | Not Important |
|---|---|---|---|
| a. bikeway completely separated from autos | ___ | ___ | ___ |
| b. rest stops along bikeway | ___ | ___ | ___ |
| c. adequate parking and safe storage available | ___ | ___ | ___ |
| d. lighting along bikeway for night use | ___ | ___ | ___ |
| e. bikeway sheltered from rain, snow, etc. | ___ | ___ | ___ |
| f. storm drain gratings not parallel to path | ___ | ___ | ___ |

g. other features, please specify _____

OVER

OVER

19. If convenient and safe bicycle riding facilities were provided, would you use them for recreational purposes? ___ Yes ___ No

20. If you do not already own a bicycle, would you be willing to purchase or rent one in order to use a new bicycle system? ___ Yes ___ No

The answers to the following questions are important to our project. DON'T STOP HERE
**********

We want to know the location where you (usually) start from when you come to campus (your origin) and/or the location of where you (usually) go to when you leave campus (your destination).

| | Zone No. (see map) | Zip Code | Frequency Trip Made |
|---|---|---|---|
| 21. Origin of trip to campus: | _____ | _____ | _____ |
| 22. Destination of trip from campus: | _____ | _____ | _____ |

23. If these locations are on the map, please locate them as closely as possible, marking an "O" for the origin of your trip to campus, and an "X" for the destination of your trip from campus.

24. Comments: Please give us any other ideas you may have concerning a bicycle system for commuting to or from campus.

********** ZONE NUMBERS **********